Docket No. RD28011-2

CLAIMS

1. (Currently amended) A method for removing at least one of: (1) an oxidized product of a substrate from a surface of the substrate, wherein the substrate is a turbine component formed of an alloy comprising nickel, chromium, aluminum, or at least one of the foregoing metals, or a polymer, or (2) an oxidized product of a metallic coating disposed on the substrate from a surface of the metallic coating, comprising the step of contacting the oxidized product of the substrate or the oxidized product of the metallic coating with an aqueous composition to remove a predetermined amount of the oxidized product of the substrate or a predetermined amount of the oxidized product of the metallic coating, wherein the aqueous composition consists essentially of an acid having the formula H_xAF_6, ~~or precursors to said acid~~, and water, wherein A is selected from the group consisting of Si, Ge, Ti, and Ga; and x is 1-6.

2. (Original) The method of claim 1, wherein x is 1-3.

3. (Original) The method of claim 1, wherein the acid is present at a level in the range of about 0.05 M to about 5 M.

4. (Original) The method of claim 3, wherein the acid is present at a level in the range of about 0.2 M to about 3.5 M.

5. (Canceled)

6. (Previously amended) The method of claim 1, wherein the aqueous composition is H_2SiF_6.

7. (Canceled)

8. (Canceled)

9. (Currently amended) The method of claim 1, wherein the aqueous composition further ~~comprises~~ consists essentially of at least one additional acid ~~or precursor thereof~~.

10. (Currently amended) The method of claim 9, wherein the at least one additional acid has a pH of less than about 7 in water.

11. (Currently amended) The method of claim 10, wherein the at least one additional acid has a pH of less than about 3.5 in water.

12. (Currently amended) The method of claim 9, wherein the at least one additional acid is a mineral acid.

13. (Currently amended) The method of claim 9, wherein the at least one additional acid is selected from the group consisting of phosphoric acid, nitric acid, sulfuric acid, hydrochloric acid, hydrofluoric acid, hydrobromic acid, hydriodic acid, acetic acid, perchloric acid, phosphorous acid, phosphinic acid, alkyl sulfonic acids, and mixtures of any of the foregoing.

14. (Currently amended) The method of claim 9, wherein the at least one additional acid is phosphoric acid.

15. (Currently amended) The method of claim 9, wherein the at least one additional acid is present at a level less than about 80 mole %, based on the total moles of acid present in the aqueous composition.

16. (Currently amended) The method of claim 15, wherein the at least one additional acid is present at a level of about 20 mole % to about 70 mole %.

17. (Original) The method of claim 1, wherein the oxide material is treated in a bath of the aqueous composition.

18. (Original) The method of claim 17, wherein the bath is maintained at a temperature in the range of about room temperature to about 100°C, during treatment.

19. (Original) The method of claim 18, wherein the temperature is in the range of about 45°C to about 90°C.

20. (Original) The method of claim 18, wherein the treatment time is in the range of about 10 minutes to about 72 hours.

21. (Original) The method of claim 20, wherein the treatment time is in the range of about 60 minutes to about 20 hours.

22. (Currently amended) The method of claim 17, wherein the aqueous composition forms a portion of the bath, wherein the bath further comprises at least one additive selected from the group consisting of inhibitors, dispersants, surfactants, chelating agents, wetting agents, deflocculants, stabilizers, anti-settling agents, reducing agents, and anti-foam agents.

23. (Currently amended) A method for removing at least one of: (1) an oxidized product of a substrate from a surface of the substrate, wherein the substrate is a turbine component comprising nickel, chromium, aluminum, iron, cobalt, or at least one of the foregoing metals, or a polymer or (2) an oxidized product of a metallic coating disposed on the substrate from a surface of the metallic coating , comprising the step of exposing the oxidized product of the substrate or the oxidized product of the metallic coating to an aqueous composition to remove a predetermined amount of the oxidized product of the substrate or a predetermined amount of the oxidized product of the metallic coating, wherein the aqueous composition consists essentially of an acid having the formula H_xAF_6, ~~or precursors to said acid,~~ and water, wherein A is selected from the group consisting of Si, Ge, Ti, and Ga; and x is 1-6, and wherein the precursors to said acid comprise any compound or group of compounds which can be combined to form the acid or its dianion AF_6^{-2}.

24. (Previously amended) A method for removing an oxide material from a diffusion- or overlay coating on the surface of a turbine engine component, comprising the step of contacting the oxide material with an aqueous composition to selectively remove the oxide material from the diffusion or the overlay coating, wherein the aqueous composition comprises H_2SiF_6, wherein the diffusion coating comprises an aluminide alloy, and wherein the overlay coating comprises a composition having a formula of MCrAl(X), wherein M is an element selected from the group consisting of Ni, Co, Fe, and combinations thereof, and wherein X is an element selected from the group consisting of Y, Ta, Si, Hf, Ti, Zr, B, C, and combinations thereof.

25. (Original) The method of claim 24, wherein the aqueous composition further comprises an additional acid selected from the group consisting of phosphoric acid, nitric acid, sulfuric acid, hydrochloric acid, hydrofluoric acid, and mixtures thereof, wherein the additional acid is present at a level less than about 80 mole %, based on the total moles of acid present in the aqueous composition.

26. (Original) The method of claim 24, wherein the oxide material is also initially present in at least one cavity within the turbine engine component, and is removed therefrom during treatment with the aqueous composition.

27. (Currently Amended) A method for replacing a protective coating applied over a substrate, comprising the following steps:

(i) removing an oxide material from the a surface of the protective coating disposed on the substrate; by contacting the oxide material with an aqueous composition which comprises an acid having the formula H_xAF_6, or precursors to said acid, wherein A is selected from the group consisting of Si, Ge, Ti, and Ga; and x is 1-6;

(ii) removing the protective coating disposed on the substrate, by contacting the protective coating with an the aqueous composition; and ~~then~~

(iii) applying a new protective coating to the substrate.

28. (Previously amended) The method of claim 27, wherein steps (i) and (ii) are carried out simultaneously, using the same aqueous composition.

29. (Cancel)

30. (Original) The method of claim 28, wherein the aqueous composition further comprises at least one additional acid or precursor thereof.

31. (Original) The method of claim 30, wherein the additional acid is selected from the group consisting of phosphoric acid, nitric acid, sulfuric acid, hydrochloric acid, hydrofluoric acid, hydrobromic acid, hydriodic acid, acetic acid, perchloric acid, phosphorous acid, phosphinic acid, alkyl sulfonic acids, and mixtures of any of the foregoing.

32. (Original) The method of claim 27, wherein the coating removed in step (ii) and the coating applied in step (iii) are each selected from the group consisting of diffusion coatings and overlay coatings.

33. (Original) The method of claim 27, wherein the new coating of step (iii) is applied by a technique selected from the group consisting of vacuum plasma spray (VPS); air plasma spray (APS); high velocity oxy-fuel (HVOF); sputtering; physical vapor deposition (PVD); electron beam physical vapor deposition (EB-PVD); and diffusion-aluminiding.

34. (Canceled)